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FILE 'HOME' ENTERED AT 16:18:11 ON 05 JUL 2005

=> file biosis caplus caba agricola

=> s cry2? and processing
L1            18 CRY2? AND PROCESSING

=> duplicate remove l1

L2            10 DUPLICATE REMOVE L1 (8 DUPLICATES REMOVED)

=> d ti 1-10

L2   ANSWER 1 OF 10  BIOSIS  COPYRIGHT (c) 2005 The Thomson Corporation  o
TI   Interaction of two Bacillus thuringiensis delta-endotoxins with the
     digestive system of Lygus hesperus.

L2   ANSWER 2 OF 10  CAPLUS  COPYRIGHT 2005 ACS on STN
TI   Contrary to other non-photic cues, acute melatonin injection does not
     induce immediate changes of clock gene mRNA expression in the rat
     suprachiasmatic nuclei

L2   ANSWER 3 OF 10  BIOSIS  COPYRIGHT (c) 2005 The Thomson Corporation  on STN
TI   Circadian profile and photic regulation of clock genes in the
     suprachiasmatic nucleus of a diurnal mammal Arvicanthis ansorgei.

L2   ANSWER 4 OF 10  CABA COPYRIGHT 2005 CABI on STN
TI   Evidence for multiple mechanisms of resistance to Cry1Ac and Cry2A
     toxins from Bacillus thuringiensis in Heliothis virescens.

L2   ANSWER 5 OF 10  BIOSIS  COPYRIGHT (c) 2005 The Thomson Corporation  on STN
TI   Physiological and molecular detection of crystalliferous Bacillus
     thuringiensis strains from habitats in the South Central United States.

L2   ANSWER 6 OF 10  CAPLUS  COPYRIGHT 2005 ACS on STN
TI   Posttranslational mechanisms regulate the mammalian circadian clock

L2   ANSWER 7 OF 10  CABA COPYRIGHT 2005 CABI on STN
TI   [Application of a PCR-based method for the detection of genetically
     modified soyabean and maize in animal feeds].
     Soia e mais geneticamente modificati: applicazione di una metodica PCR in
     alimenti ad uso zootecnico.

L2   ANSWER 8 OF 10  BIOSIS  COPYRIGHT (c) 2005 The Thomson Corporation  on STN
TI   Production of chymotrypsin-resistant Bacillus thuringiensis
     Cry2Aa1 delta-endotoxin by protein engineering.

L2   ANSWER 9 OF 10  CABA COPYRIGHT 2005 CABI on STN
TI   Interaction of Bacillus thuringiensis [delta]-endotoxins with midgut brush
     border membrane vesicles of Helicoverpa armigera.

L2   ANSWER 10 OF 10  CAPLUS  COPYRIGHT 2005 ACS on STN
TI   The sequence of a 36 kb segment on the left arm of yeast chromosome X
     identifies 24 open reading frames including NUC1, PRP21 (SPP91), CDC6,
     CRY2, the gene for S24, a homolog to the aconitase gene ACO1 and
     two homologues to chromosome III genes


=> d bib abs 9 8 4 1

L2   ANSWER 9 OF 10  CABA COPYRIGHT 2005 CABI on STN
AN   2000:57120  CABA
DN   20001107788
TI   Interaction of Bacillus thuringiensis [delta]-endotoxins with midgut brush
     border membrane vesicles of Helicoverpa armigera
AU   Shahid Karim; Riazuddin, S.; Dean, D. H.
```

CS National Centre of Excellence in Molecular Biology, University of the Punjab, Canal Bank Road, Lahore-53700, Pakistan.
SO Journal of Asia-Pacific Entomology, (1999) Vol. 2, No. 2, pp. 153-162. 40 ref.
DT Journal
LA English
ED Entered STN: 20000511
Last Updated on STN: 20000511
AB The pesticidal activity of different Bacillus thuringiensis (Bt) [delta]-endotoxins, Cry1Aa, Cry1Ab, Cry1Ac and **Cry2A**, was studied against Helicoverpa armigera infesting cotton crops worldwide. The Cry1Ac toxin was the most potent. All selected Bt toxins were stable to in vitro **processing** by midgut juice of H. armigera. Saturation and competition binding experiments were performed with iodine-125 labelled proteins and brush border membrane vesicles prepared from the midgut of H. armigera. The results showed saturable, specific and high affinity binding of all toxins except for **Cry2A**. Both toxins were bound with low binding affinity but with high binding site concentration. Heterologous competition experiments showed that Cry1Aa, Cry1Ab and Cry1Ac recognized or shared the same binding site which was different to that of **Cry2A**. The data suggested that the development of multiple toxin systems in transgenic plants with toxin pyramiding, which recognize different binding sites, may be useful in deployment strategies to decrease the rate of pest adaptation to Bt toxins in transgenic plants.

L2 ANSWER 8 OF 10 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
AN 1999:492087 BIOSIS
DN PREV199900492087
TI Production of chymotrypsin-resistant Bacillus thuringiensis **Cry2Aa1** delta-endotoxin by protein engineering.
AU Audtho, Mongkon; Valaitis, Algimantas P.; Alzate, Oscar; Dean, Donald H. [Reprint author]
CS Department of Biochemistry, Ohio State University, 484 West 12th Ave., Columbus, OH, 43210-1292, USA
SO Applied and Environmental Microbiology, (Oct., 1999) Vol. 65, No. 10, pp. 4601-4605. print.
CODEN: AEMIDF. ISSN: 0099-2240.
DT Article
LA English
ED Entered STN: 16 Nov 1999
Last Updated on STN: 16 Nov 1999
AB Cleavage of the **Cry2Aa1** protoxin (molecular mass, 63 kDa) from Bacillus thuringiensis by midgut juice of gypsy moth (Lymantria dispar) larvae resulted in two major protein fragments: a 58-kDa fragment which was highly toxic to the insect and a 49-kDa fragment which was not toxic. In the midgut juice, the protoxin was processed into a 58-kDa toxin within 1 min, but after digestion for 1 h, the 58-kDa fragment was further cleaved within domain I, resulting in the protease-resistant 49-kDa fragment. Both the 58-kDa and nontoxic 49-kDa fragments were also found in vivo when 125I-labeled toxin was fed to the insects. N-terminal sequencing revealed that the protease cleavage sites are at the C termini of Tyr49 and Leu144 for the active fragment and the smaller fragment, respectively. To prevent the production of the nontoxic fragment during midgut **processing**, five mutant proteins were constructed by replacing Leu144 of the toxin with Asp (L144D), Ala (L144A), Gly (L144G), His (L144H),or Val (L144V) by using a pair of complementary mutagenic oligonucleotides in PCR. All of the mutant proteins were highly resistant to the midgut proteases and chymotrypsin. Digestion of the mutant proteins by insect midgut extract and chymotrypsin produced only the active 58-kDa fragment, except that L144H was partially cleaved at residue 144.

L2 ANSWER 4 OF 10 CABA COPYRIGHT 2005 CABI on STN
AN 2003:165607 CABA
DN 20033141535
TI Evidence for multiple mechanisms of resistance to Cry1Ac and **Cry2A** toxins from Bacillus thuringiensis in Heliothis virescens

AU Jurat-Fuentes, J. L.; Gould, F. L.; Adang, M. J.
CS Department of Entomology, University of Georgia, Athens, GA 30602, USA.
SO Resistant Pest Management Newsletter, (2003) Vol. 12, No. 2, pp. 42-44. 14 ref.
Publisher: Center for Integrated Plant Systems. East Lansing
CY United States
DT Journal
LA English
ED Entered STN: 20031003
Last Updated on STN: 20031003
AB Toxin-binding assays using radiolabelled Cry1A toxins were conducted to study the mechanism of resistance to the bacterial toxins in H. virescens strains CXC and KCBhyb. The strains were isolated and incubated with increasing concentrations of labelled Cry1A toxins to generate binding saturation curves. Results indicated the presence of at least 2 resistance mechanisms in the larvae from the KCBhyb strain, one of which would be related to Cry 1A receptor alteration and the other would be related to toxin solubilization and **processing** in the larval midgut. Alteration of toxin solubilization and/or **processing** seems to be the main mechanism of resistance in CXC.

L2 ANSWER 1 OF 10 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
AN 2004:161171 BIOSIS
DN PREV200400164879
TI Interaction of two Bacillus thuringiensis delta-endotoxins with the digestive system of Lygus hesperus.
AU Brandt, Sandra L.; Coudron, Thomas A. [Reprint Author]; Habibi, Javad; Brown, Gregory R.; Ilagan, Oliver M.; Wagner, Renee M.; Wright, Maureen K.; Backus, Elaine A.; Huesing, Joseph E.
CS Biological Control of Insects Research Laboratory, U.S. Department of Agriculture, Agricultural Research Service, 1503 S. Providence Rd, Columbia, MO, 65203, USA
coudront@missouri.edu
SO Current Microbiology, (January 2004) Vol. 48, No. 1, pp. 1-9. print.
CODEN: CUMIDD. ISSN: 0343-8651.
DT Article
LA English
ED Entered STN: 24 Mar 2004
Last Updated on STN: 24 Mar 2004
AB The active-toxin form of Cry1Ac (65 kDa) or **Cry2Ab** was fed to a non-susceptible insect, Lygus hesperus, in an artificial diet. Biochemical and immunocytochemical methods were used to determine the distribution of ingested toxin. The toxins did not elicit a feeding deterrent response. Cry1Ac and **Cry2Ab** were ingested; small amounts were absorbed into the hemolymph as holoproteins, but most was excreted. SDS-PAGE analysis of Cry1Ac and **Cry2Ab** incubations with salivary gland homogenate showed a small decrease in the molecular weight of the active toxins. Proteolytic **processing** of the toxins also occurred in vivo, within the digestive system of L. hesperus. Excreted Cry1Ac and **Cry2Ab** retained activity toward lepidopteran larvae. Immunocytochemical in vivo localization studies showed negligible association of Cry1Ac with L. hesperus tissues. In contrast, strong extracellular association of **Cry2Ab** was observed with L. hesperus midgut brush border microvilli and basement membrane, as well as with cellular outlines within the hemolymph and fat body.

=> s cryII? and process?
L3 56 CRYII? AND PROCESS?

=> duplicate remove l3
L4 28 DUPLICATE REMOVE L3 (28 DUPLICATES REMOVED)

=> d ti 1-28

L4 ANSWER 1 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
TI Method for the Detection of Synthetic cry3A in Transgenic Potatoes

L4 ANSWER 2 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
TI Functional analysis of two **processed** fragments of Bacillus thuringiensis Cry11A toxin

L4 ANSWER 3 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
TI Homologous recombination into Gram-positive bacterium for generation of expression libraries of polynucleotides

L4 ANSWER 4 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
TI Methods for production and secretion of asparaginase in Bacillus subtilis

L4 ANSWER 5 OF 28 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
TI Assessment of screening methods for the identification of genetically modified potatoes in raw materials and finished products.

L4 ANSWER 6 OF 28 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
TI RNA **processing** and degradation in Bacillus subtilis.

L4 ANSWER 7 OF 28 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
TI A detection method for recombinant DNA from genetically modified potato (NewLeaf Y(R) potato).

L4 ANSWER 8 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
TI PCR method for detecting recombinant DNAs from genetically modified crops and **processed** food

L4 ANSWER 9 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
TI Bacillus thuringiensis strain fermentation **process** and insecticide application

L4 ANSWER 10 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
TI Expression of multiple insecticidal genes confers broad resistance against a range of different rice pests

L4 ANSWER 11 OF 28 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Phase-specific optimization of multiple endotoxin-protein production with genetically engineered Bacillus thuringiensis.

L4 ANSWER 12 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
TI Nucleic acid vectors for recombinant production of heterologous proteins in a Bacillus cell

L4 ANSWER 13 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
TI Insect-resistant transgenic plants and methods for improving δ-endotoxin activity against target insects

L4 ANSWER 14 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
TI Transition State of the Rate-Limiting Step of Heat Denaturation of Cry3A δ-Endotoxin

L4 ANSWER 15 OF 28 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Organizational complexity of a rice transgene locus susceptible to methylation-based silencing.

L4 ANSWER 16 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
TI Sporulation-incompetent strains of Bacillus thuringiensis for use in persistent δ-endotoxin-based pesticide formulations

L4 ANSWER 17 OF 28 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Functional significance of loops in the receptor binding domain of Bacillus thuringiensis **CryIIIA** delta-endotoxin.

L4 ANSWER 18 OF 28 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Proteolytic **processing** of Bacillus thuringiensis **CryIIIA** toxin and specific binding to brush-border membrane vesicles of Leptinotarsa decemlineata (Colorado potato beetle).

L4 ANSWER 19 OF 28 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Transfer and transcriptional expression of coleopteran **cryIIIB** endotoxin gene of Bacillus thuringiensis in eggplant.

L4 ANSWER 20 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
TI Safety assessment of potatoes resistant to Colorado potato beetle

L4 ANSWER 21 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
TI Overproduction of encapsulated insecticidal crystal proteins in a Bacillus thuringiensis spo0A mutant

L4 ANSWER 22 OF 28 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Overexpression of Bacillus thuringiensis HknA, a histidine protein kinase homology, bypasses early Spo- mutations that result in **CryIIIA** overproduction.

L4 ANSWER 23 OF 28 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Structural and functional analysis of the promoter region involved in full expression of the **cryIIIA** toxin gene of bacillus thuringiensis.

L4 ANSWER 24 OF 28 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Site-directed mutations in a highly conserved region of Bacillus thuringiensis delta-endotoxin affect inhibition of short circuit current across Bombyx mori midguts.

L4 ANSWER 25 OF 28 CABA COPYRIGHT 2005 CABI on STN
TI The crystal [delta]-endotoxins of Bacillus thuringiensis: models for their mechanisms of action on the insect gut.

L4 ANSWER 26 OF 28 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Immunocytochemical localization of Bacillus thuringiensis insecticidal crystal proteins in intoxicated insects.

L4 ANSWER 27 OF 28 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Synthetic **cryIIIA** gene from Bacillus thuringiensis improved for high expression in plants.

L4 ANSWER 28 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
TI Recovery of Bacillus thuringiensis endotoxin protein from lysed cell mixtures

=> d bib abs 2 13 18 25

L4 ANSWER 2 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:327750 CAPLUS
DN 141:48991
TI Functional analysis of two **processed** fragments of Bacillus thuringiensis Cry11A toxin
AU Yamagiwa, Masashi; Sakagawa, Kohei; Sakai, Hiroshi
CS Department of Bioscience and Biotechnology, Okayama University, Okayama, 700-8530, Japan
SO Bioscience, Biotechnology, and Biochemistry (2004), 68(3), 523-528
CODEN: BBBIEJ; ISSN: 0916-8451
PB Japan Society for Bioscience, Biotechnology, and Agrochemistry
DT Journal
LA English
AB The 70-kDa protoxin of Cry11A, a dipteran-specific insecticidal protein, was **processed** by trypsin into 36- and 32-kDa fragments. To investigate the potent function of the two **processed** fragments, a GST (Glutathione-S-transferase) fusion protein of each polypeptide was constructed. While neither the 36- nor the 32-kDa fragment was toxic to Culex pipiens larvae, coexpression of the two fragments restored the insecticidal activity. Furthermore, the copptn. experiment demonstrated that the 36-kDa fragment was associated with the 32-kDa fragment. It was, therefore, shown that the coexistence of the two **processed**

fragments of Cry11A was essential for the toxicity. The mutant of the 36-kDa fragment lacking the region from Gly257 to Arg360 bound to the 32-kDa fragment but the coexpression with the 32-kDa fragment resulted in no toxicity, suggesting that this region was involved in insecticidal activity.

RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 13 OF 28 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1999:405094 CAPLUS
DN 131:55200
TI Insect-resistant transgenic plants and methods for improving δ-endotoxin activity against target insects
IN English, Leigh; Brussock, Susan M.; Malvar, Thomas M.; Bryson, James W.; Kulesza, Caroline A.; Walters, Frederick S.; Slatin, Stephen L.; Von Tersch, Michael A.; Romano, Charles
PA Ecogen, Inc., USA; Monsanto Company
SO PCT Int. Appl., 512 pp.
CODEN: PIXXD2
DT Patent
LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9931248	A1	19990624	WO 1998-US26852	19981217
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, US, US, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	US 6023013	A	20000208	US 1997-996441	19971218
	US 6060594	A	20000509	US 1997-993722	19971218
	US 6063597	A	20000516	US 1997-993170	19971218
	US 6077824	A	20000620	US 1997-993775	19971218
	CA 2314429	AA	19990624	CA 1998-2314429	19981217
	AU 9920013	A1	19990705	AU 1999-20013	19981217
	EP 1040192	A1	20001004	EP 1998-964762	19981217
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	BR 9814294	A	20011023	BR 1998-14294	19981217
	ZA 9811673	A	19990628	ZA 1998-11673	19981218
	US 6620988	B1	20030916	US 1999-427770	19991027
	US 6642030	B1	20031104	US 1999-427769	19991027
	US 2004033523	A1	20040219	US 2003-614076	20030703
PRAI	US 1997-993170	A1	19971218		
	US 1997-993722	A1	19971218		
	US 1997-993775	A1	19971218		
	US 1997-996441	A1	19971218		
	WO 1998-US26852	W	19981217		
	US 1999-427770	A3	19991027		

AB Disclosed are methods for increasing the activity of Bacillus thuringiensis δ-endotoxins against Coleopteran insect pests. The three-dimensional crystal structure of Cry3Bb δ-endotoxin was used as the basis for protein engineering. Thirty-six mutants are created by (1) alteration of protease-sensitive sites and proteolytic **processing**, (2) modification of bound water and hydropathic index of amino acids, (3) manipulation of hydrogen bonds around mobile regions, (4) loop anal. and loop design around the flexible helixes and β-strands and β-sheets, (5) re-design of complex electrostatic surfaces, (6) removal of metal binding sites, (7) alteration of quaternary structure, and (8) alteration of binding to glycoproteins and to western corn rootworm brush border membranes. Also disclosed are methods for mutagenizing nucleic acid sequences encoding these polypeptides, and

increasing insect resistance in transgenic plants expressing these genes.
RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 18 OF 28 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
AN 1996:314786 BIOSIS
DN PREV199699037142
TI Proteolytic **processing** of Bacillus thuringiensis **CryIIIA** toxin and specific binding to brush-border membrane vesicles of Leptinotarsa decemlineata (Colorado potato beetle).
AU Martinez-Ramirez, A. C. [Reprint author]; Real, M. D.
CS Dep. de Genetica, Universitat de Valencia, Dr. Moliner 50, 46100 Burjassot, Valencia, Spain
SO Pesticide Biochemistry and Physiology, (1996) Vol. 54, No. 2, pp. 115-122. CODEN: PCBPBS. ISSN: 0048-3575.
DT Article
LA English
ED Entered STN: 11 Jul 1996
Last Updated on STN: 11 Jul 1996
AB The mode of action of Bacillus thuringiensis insecticidal proteins in lepidopteran insects is known to involve five steps: ingestion, solubilization, protease activation, binding to midgut membrane receptors, and disruption of the intestinal membrane. Two of these steps, protease activation and binding to midgut membrane receptors, have been analyzed in the major potato pest, the coleoptera Leptinotarsa decemlineata (Colorado potato beetle). Unlike recently proposed, after treatment of the coleopteran-specific B. thuringiensis toxin **CryIIIA** with gut content from the Colorado potato beetle, a 42-kDa **processing** polypeptide has been identified. The study of binding to midgut membrane receptors has demonstrated specific and saturable binding of chymotrypsinized **CryIIIA** to brush-border membrane vesicles from the Colorado potato beetle. The affinity constant and the concentration of binding sites values (K-d = 37.5 +- 8.6 nM, R-t = 17 +- 4 pmol/mg of protein) were in the range of the ones previously estimated for low affinity binding sites in lepidopteran insects. Taking into account that **CryIII4** can be proteolytically **processed** by the Colorado potato beetle midgut proteases, along with the fact that, in our hands, binding can be demonstrated only if the toxin is chymotrypsin **processed**, these results suggest that the mode of action of the coleopteran-specific B. thuringiensis toxin **CryIIIA** is probably the same as that of lepidopteran-specific toxins.

L4 ANSWER 25 OF 28 CABA COPYRIGHT 2005 CABI on STN
AN 93:117618 CABA
DN 19931181431
TI The crystal [delta]-endotoxins of Bacillus thuringiensis: models for their mechanisms of action on the insect gut
AU Knowles, B. H.; Dow, J. A. T.
CS Department of Zoology, University of Cambridge, Downing Street, Cambridge, CB2 3EJ, UK.
SO BioEssays, (1993) Vol. 15, No. 7, pp. 469-476. 49 ref.
ISSN: 0265-9247
DT Journal
LA English
ED Entered STN: 19941101
Last Updated on STN: 19941101
AB A model of the effects on insect gut of [delta]-endotoxins from Bacillus thuringiensis is presented, based on a recently elucidated structure for **CryIIIA**. The **processes** of solubilisation and proteolytic activation, receptor binding and formation of the toxic lesion are described. Predictions are made for the effects of the toxins on ion movement, gap junctions and osmotic events and goblet cells.

=> s l4 not cryIII?
L5 3 L4 NOT CRYIII?

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=> d ti 1-3

L5   ANSWER 1 OF 3  CAPLUS  COPYRIGHT 2005 ACS on STN
TI   Functional analysis of two processed fragments of Bacillus
     thuringiensis Cryl1A toxin

L5   ANSWER 2 OF 3  CAPLUS  COPYRIGHT 2005 ACS on STN
TI   Bacillus thuringiensis strain fermentation process and
     insecticide application

L5   ANSWER 3 OF 3  CAPLUS  COPYRIGHT 2005 ACS on STN
TI   Expression of multiple insecticidal genes confers broad resistance against
     a range of different rice pests


=> d bib abs 3

L5   ANSWER 3 OF 3  CAPLUS  COPYRIGHT 2005 ACS on STN
AN   2001:307179  CAPLUS
DN   136:65624
TI   Expression of multiple insecticidal genes confers broad resistance against
     a range of different rice pests
AU   Maqbool, Shahina Bano; Riazuddin, Sheikh; Loc, Nguyen Thi; Gatehouse,
     Angharad M. R.; Gatehouse, John A.; Christou, Paul
CS   Molecular Biotechnology Unit, John Innes Centre, Norwich, NR4 7UH, UK
SO   Molecular Breeding (2001), 7(1), 85-93
     CODEN: MOBRFL; ISSN: 1380-3743
PB   Kluwer Academic Publishers
DT   Journal
LA   English
AB   We report the simultaneous introduction of three insecticidal genes (the
     Bt genes cry1Ac and cry2A, and the snowdrop lectin gene gna) into com.
     important indica rice varieties M7 and Basmati 370, by particle
     bombardment.  Transgenic plants expressed Cry1Ac, Cry2A and GNA at
     different levels, either singly or in combination at 0.03-1%, 0.01-0.5%
     and 0.01-2.5% of total soluble protein, resp.  The transgenes showed stable
     transmission and expression, and R1 transgenic plants provided significant
     (p<0.01) protection against three of the most important insect pests of
     rice: rice leaf folder (Cnaphalocrocis medinalis), yellow stemborer
     (Scirpophaga incertulas) and brown planthopper (Nilaparvata lugens).  The
     triple transformants showed significantly (p<0.05) higher resistance to
     these insects than plants expressing single transgenes.  Bioassays using
     the triple-transgenic plants showed 100% eradication of the rice leaf
     folder and yellow stem borer, and 25% reduction in the survival of the brown
     planthopper.  The greatest reduction in insect survival, and the greatest
     reduction in plant damage, occurred in plants expressing all three transgenes.
     This approach maximises the utility of gene transfer technol. to introduce
     combinations of genes whose products disrupt different biochem. or
     physiol. processes in the same insect, providing a
     multi-mechanism defense.
RE.CNT  32    THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD
              ALL CITATIONS AVAILABLE IN THE RE FORMAT


=> s cry2? and process?
L6           82 CRY2? AND PROCESS?

=> duplicate remove
ENTER L# LIST OR (END):l6
DUPLICATE PREFERENCE IS 'BIOSIS, CAPLUS, CABA, AGRICOLA'
KEEP DUPLICATES FROM MORE THAN ONE FILE?  Y/(N):n
PROCESSING COMPLETED FOR L6
L7            46 DUPLICATE REMOVE L6 (36 DUPLICATES REMOVED)

=> d ti 1-46

L7   ANSWER 1 OF 46  CAPLUS  COPYRIGHT 2005 ACS on STN
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TI Pulses of prolactin promoter activity depend on a noncanonical E-box that can bind the circadian proteins CLOCK and BMAL1

L7 ANSWER 2 OF 46 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
TI Regulation of prokineticin 2 expression by light and the circadian clock -.

L7 ANSWER 3 OF 46 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
TI Cryptochromes and neuronal-activity markers colocalize in the retina of migratory birds during magnetic orientation.

L7 ANSWER 4 OF 46 CAPLUS COPYRIGHT 2005 ACS on STN
TI Tobacco budworm response to CryIAc and **Cry2Ab** toxins of Bacillus thuringiensis

L7 ANSWER 5 OF 46 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
TI Light-response quantitative trait loci identified with composite interval and eXtreme array mapping in Arabidopsis thaliana.

L7 ANSWER 6 OF 46 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
DUPLICATE 4
TI Comparison of broiler chicken performance when fed diets containing meals of Bollgard II hybrid cotton containing Cry-X gene (Cry1Ac and **Cry2Ab** gene), parental line or commercial cotton.

L7 ANSWER 7 OF 46 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
TI Retinal cryptochrome in a migratory passerine bird: a possible transducer for the avian magnetic compass.

L7 ANSWER 8 OF 46 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
TI Enhanced expression of insecticidal crystal proteins in wild Bacillus thuringiensis strains by a heterogeneous protein p20.

L7 ANSWER 9 OF 46 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
TI Interaction of two Bacillus thuringiensis delta-endotoxins with the digestive system of Lygus hesperus.

L7 ANSWER 10 OF 46 CAPLUS COPYRIGHT 2005 ACS on STN
TI Novel Bacillus thuringiensis insecticidal proteins

L7 ANSWER 11 OF 46 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Blue light activates calcium-permeable channels in Arabidopsis mesophyll cells via the phototropin signaling pathway.

L7 ANSWER 12 OF 46 CAPLUS COPYRIGHT 2005 ACS on STN
TI Contrary to other non-photic cues, acute melatonin injection does not induce immediate changes of clock gene mRNA expression in the rat suprachiasmatic nuclei

L7 ANSWER 13 OF 46 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Circadian profile and photic regulation of clock genes in the suprachiasmatic nucleus of a diurnal mammal Arvicanthis ansorgei.

L7 ANSWER 14 OF 46 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Clock genes and the long-term regulation of prolactin secretion: Evidence for a photoperiod/circannual timer in the pars tuberalis.

L7 ANSWER 15 OF 46 CAPLUS COPYRIGHT 2005 ACS on STN
TI The role of phosphorylation and degradation of hPER protein oscillation in normal human fibroblasts

L7 ANSWER 16 OF 46 CAPLUS COPYRIGHT 2005 ACS on STN
TI Application of Filter Technology in PhotoMorphogenesis Gene Network

L7 ANSWER 17 OF 46 CABA COPYRIGHT 2005 CABI on STN
TI Evidence for multiple mechanisms of resistance to Cry1Ac and **Cry2A** toxins from Bacillus thuringiensis in Heliothis virescens.

L7 ANSWER 18 OF 46 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Differential regulation of clock genes and metabolic activity in astrocytes.

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TI Disruption of mCry2 restores circadian rhythmicity in mPer2 mutant mice.

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TI Yeast genes controlling responses to topogenic signals in a model transmembrane protein.

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TI Distribution of Bacillus thuringiensis cry genes in Middle Tennessee.

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TI Physiological and molecular detection of crystalliferous Bacillus thuringiensis strains from habitats in the South Central United States.

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TI Extensive and divergent circadian gene expression in liver and heart.

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TI A role for cryptochromes in sleep regulation.

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TI CHANGES IN mRNA LEVELS OF CLOCK - RELATED GENES IN NON - SCN BRAIN REGIONS: RELEVANCE TO SLEEP HOMEOSTASIS.

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TI Detection of variations in the DNA methylation profile of genes in the determining the risk of disease

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TI Expression of multiple genes in a single operon in plants and uses as insecticides and in degrading inorganic or organic metal compounds in soil and water

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TI Bacillus thuringiensis strain fermentation **process** and insecticide application

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TI Hierarchical coupling of phytochromes and cryptochromes reconciles stability and light modulation of Arabidopsis development.

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TI Circadian clock-regulated expression of phytochrome and cryptochrome genes in Arabidopsis.

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TI Regulation of CLOCK and MOP4 by nuclear hormone receptors in the vasculature: a humoral mechanism to reset a peripheral clock

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TI Posttranslational mechanisms regulate the mammalian circadian clock

L7 ANSWER 33 OF 46 CAPLUS COPYRIGHT 2005 ACS on STN
TI Feedback loop of clock genes

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TI The coupling of central and peripheral circadian oscillators in the mammalian circadian system by scope of Period 1 expression profile

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TI Further characterization of the phenotype of mCry1/mCry2-deficient mice.

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TI Susceptibility of the pine **processionary** caterpillar Thaumetopoea pityocampa (Lepidoptera: Thaumetopoeidae) toward delta-endotoxins of Bacillus thuringiensis under laboratory conditions.

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TI UV and blue light signalling: Pathways regulating chalcone synthase gene expression in Arabidopsis.

L7 ANSWER 38 OF 46 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Expression of multiple insecticidal genes confers broad resistance against a range of different rice pests.

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TI [Application of a PCR-based method for the detection of genetically modified soyabean and maize in animal feeds].
Soia e mais geneticamente modificati: applicazione di una metodica PCR in alimenti ad uso zootecnico.

L7 ANSWER 40 OF 46 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI Production of chymotrypsin-resistant Bacillus thuringiensis **Cry2Aa1** delta-endotoxin by protein engineering.

L7 ANSWER 41 OF 46 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
TI An extraretinally expressed insect cryptochrome with similarity to the blue light photoreceptors of mammals and plants.

L7 ANSWER 42 OF 46 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN DUPLICATE 18
TI Mammalian Cry1 and **Cry2** are essential for maintenance of circadian rhythms.

L7 ANSWER 43 OF 46 CABA COPYRIGHT 2005 CABI on STN
TI Interaction of Bacillus thuringiensis [delta]-endotoxins with midgut brush border membrane vesicles of Helicoverpa armigera.

L7 ANSWER 44 OF 46 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN DUPLICATE 19
TI Cloning and analysis of the first cry gene from Bacillus popilliae.

L7 ANSWER 45 OF 46 CAPLUS COPYRIGHT 2005 ACS on STN
TI The sequence of a 36 kb segment on the left arm of yeast chromosome X identifies 24 open reading frames including NUC1, PRP21 (SPP91), CDC6, **CRY2**, the gene for S24, a homolog to the aconitase gene ACO1 and two homologues to chromosome III genes

L7 ANSWER 46 OF 46 CAPLUS COPYRIGHT 2005 ACS on STN
TI Chronopotentiometry of electrode **processes** followed by chemical reactions involving electroactive species. Reduction of hexamminechromium(III) in the presence of ethylenediaminetetraacetate

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L7 ANSWER 40 OF 46 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on
AN 1999:492087 BIOSIS
DN PREV199900492087
TI Production of chymotrypsin-resistant Bacillus thuringiensis **Cry2Aa1** delta-endotoxin by protein engineering.
AU Audtho, Mongkon; Valaitis, Algimantas P.; Alzate, Oscar; Dean, Donald H. [Reprint author]
CS Department of Biochemistry, Ohio State University, 484 West 12th Ave., Columbus, OH, 43210-1292, USA
SO Applied and Environmental Microbiology, (Oct., 1999) Vol. 65, No. 10, pp. 4601-4605. print.
CODEN: AEMIDF. ISSN: 0099-2240.

DT Article
LA English
ED Entered STN: 16 Nov 1999
Last Updated on STN: 16 Nov 1999
AB Cleavage of the **Cry2Aa1** protoxin (molecular mass, 63 kDa) from Bacillus thuringiensis by midgut juice of gypsy moth (Lymantria dispar) larvae resulted in two major protein fragments: a 58-kDa fragment which was highly toxic to the insect and a 49-kDa fragment which was not toxic. In the midgut juice, the protoxin was **processed** into a 58-kDa toxin within 1 min, but after digestion for 1 h, the 58-kDa fragment was further cleaved within domain I, resulting in the protease-resistant 49-kDa fragment. Both the 58-kDa and nontoxic 49-kDa fragments were also found in vivo when 125I-labeled toxin was fed to the insects. N-terminal sequencing revealed that the protease cleavage sites are at the C termini of Tyr49 and Leu144 for the active fragment and the smaller fragment, respectively. To prevent the production of the nontoxic fragment during midgut **processing**, five mutant proteins were constructed by replacing Leu144 of the toxin with Asp (L144D), Ala (L144A), Gly (L144G), His (L144H),or Val (L144V) by using a pair of complementary mutagenic oligonucleotides in PCR. All of the mutant proteins were highly resistant to the midgut proteases and chymotrypsin. Digestion of the mutant proteins by insect midgut extract and chymotrypsin produced only the active 58-kDa fragment, except that L144H was partially cleaved at residue 144.

L7 ANSWER 17 OF 46 CABA COPYRIGHT 2005 CABI on STN
AN 2003:165607 CABA
DN 20033141535
TI Evidence for multiple mechanisms of resistance to Cry1Ac and **Cry2A** toxins from Bacillus thuringiensis in Heliothis virescens
AU Jurat-Fuentes, J. L.; Gould, F. L.; Adang, M. J.
CS Department of Entomology, University of Georgia, Athens, GA 30602, USA.
SO Resistant Pest Management Newsletter, (2003) Vol. 12, No. 2, pp. 42-44. 14 ref.
Publisher: Center for Integrated Plant Systems. East Lansing
CY United States
DT Journal
LA English
ED Entered STN: 20031003
Last Updated on STN: 20031003
AB Toxin-binding assays using radiolabelled Cry1A toxins were conducted to study the mechanism of resistance to the bacterial toxins in H. virescens strains CXC and KCBhyb. The strains were isolated and incubated with increasing concentrations of labelled Cry1A toxins to generate binding saturation curves. Results indicated the presence of at least 2 resistance mechanisms in the larvae from the KCBhyb strain, one of which would be related to Cry 1A receptor alteration and the other would be related to toxin solubilization and **processing** in the larval midgut. Alteration of toxin solubilization and/or **processing** seems to be the main mechanism of resistance in CXC.

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